

THE LINK BETWEEN EXPORT AND TOTAL FACTOR PRODUCTIVITY: EVIDENCE FROM NIGERIA

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ABSTRACT

The study analyses the export and productivity growth in the Nigerian manufacturing sector. Export growth is regressed on total factor productivity growth. The Error Correction Model was used on data collected from publications of the Central Bank of Nigeria. Import growth rate, growth rate of foreign income, relative income and capacity utilization are used as control variables. The empirical analysis results provide support for a link between export growth and productivity growth. The direction of causality runs in both directions. It is important to promote manufacturing export at a sustainable level, not just over space and time.

KEYWORDS: total factor, productivity, manufacturing, export, growth, causality.

INTRODUCTION

There have been on-going debates on the direction of causality between trade and productivity. In theory, the causal relationship between them is two way, but export-led growth theorists generally contend that export enhance productivity growth (Haddad et al, 1996, Weinhold and Rauch, 1997 and Sjoeholin, 1999). These theorists argue that firms tend to learn advanced technologies through exports and must adopt them to compete in the foreign market place (Balassa, 2001; Kruegar and Truncer, 2002; Nishimizu and Robinson, 1994).

This study investigates the link between trade and productivity growth for the Nigerian economy, with special attention to export-productivity nexus in the manufacturing sector. Our attention to this sector is borne out of the existing gap in the literature of trade-productivity nexus in Nigeria. Most previous studies analyzing the relationship between trade and growth for the Nigerian economy have focused on total or non-oil export as trade and investigated the causality between export and economic growth. The causality between trade and export in manufacturing sectors has largely been ignored in the literature. This omission is rather surprising given the fact that economies that are breaking forth in the global market rely more on manufactured exports, which has termed manufacturing sector 'the most imperative' in the global market. This study tries to provide a comprehensive analysis of export trade and productivity growth in the manufacturing sector, with special emphasis on the productivity led-export growth, and other factors driving the relationship. Nigeria is highly dependent on external trade, yet there have not been enough evidences of improved productivity growth, especially in the manufacturing sectors.

The question now is, if increased productivity growth increases export growth as in the case of some developing economies, or it is export that increase productivity as found out in the newly industrialised economies, what can be said of the Nigerian economy? This question is necessary following the need to know the policy target between the two variables. Thus, some fundamental questions, which form the basis of this paper are:

- (i) What are the levels of total factor productivity in manufacturing industries in Nigeria?
- (ii) What is the direction of causality between productivity and export in the manufacturing sector?

- (iii) Does any long-run relationship exist between manufacturing export growth and growth in productivity that can revive the sector in Nigeria?

This study, therefore attempts to provide answers to the questions posed above. Specifically, the study provides the nexus of relationships between export and productivity growth in manufacturing sector.

A Review of Literature

The association between exports and productivity is ambiguous (Kankesu, 2002). One can argue that growth of exports brings higher growth of productivity through an educative process. For example a higher level of contact with foreign competitors as result of export growth can motivate rapid technical changes and managerial know-how and reduce 'X-inefficiency' locally. If this is true, then export trade growth in form of liberalization is a precondition for improvement in productivity. Alternatively, high growth of productivity is essential for high growth of exports. For example, highly sophisticated management techniques may originate within local firms/industries regardless of any government policy towards exports.

Haddad, et al (1996), in Morocco, accepted the hypothesis that export growth causes productivity growth and rejected the causality in the opposite direction. Sjöholm (1999) for Indonesia manufacturing industries, Iscan (1998) for Mexican manufacturing industries and Nishimizu and Robinson (1994) for Japan, Turkey, Yugoslavia and South Korea concluded that the larger the share of output that goes into exports the higher the productivity growth. This variation is the reason for conducting the causality test using Nigerian manufacturing industry.

There are arguments suggesting that increased foreign competition may be injurious to domestic industries if it leads to a closure of factories (Van Biesbroek, 2003). Indeed, Rodrik (1991) finds that lower protection or higher import competition reduces a firm's investment in productivity enhancing technological upgrading. This is especially the case when the incentive to invest depends on the firm's output or market share — yet trade liberalization reduces that market share. Caesar, (2002) also argued that the magnitude of gains from liberalisation could be fairly low. If trade reduces the domestic market shares of unshielded domestic producers without expanding their international sales, their incentives to invest in improved technology will decrease as protection ceases.

This effect reduces the benefits of tariff reductions that are supposed to lower the relative prices of imported capital goods and ease access to foreign technology for domestic firms (Pavcnik, 2000). It is also argued that liberalisation does not facilitate acquisition of better technology by domestic plants because acquisition is dependent on the flexibility of the domestic labour force. Muendler (2002) finds that foreign technology adoption may be relatively unimportant.

This is because the efficiency difference between foreign and domestic inputs has only a minor impact on productivity in some cases. The explanation for the minor impact lie in the fact that foreign technology adoption takes time due to delays in learning, difficulties with factor complementarities and differences in production arrangements. Even in the context of economies of scale, theoretical trade literature offers conflicting predictions about the evolution of plant productivity following a liberalisation episode, especially in cases where imperfect competition is present. Gains from economies of scale in developing countries may also be unlikely because increasing returns to scale are usually associated with import competing industries, whose output is likely to contract due to intensified foreign competition (Pavcnik, 2000)

There seems to be one general conclusion from the various studies on TFP conducted across developing economies : That TFP growth has not been encouraging. In fact, some estimates seem to suggest negative TFP growth, and therefore has not been a source of economic growth. (Caesar, 2002:)

If there are benefits to a country's manufacturing sector that arise from trade then these benefits should result from two sources. The first source is from greater efficiency in production through increased competition and specialisation. The second source is from the opportunities that arise to exploit economies of scale in a larger market. Access to a larger market should encourage larger production runs in industries and so reduce average costs.

Productivity growth seems to be directly associated with production of tradable goods. This implies that the benefits from foreign activities are likely to be higher in two areas; firstly, in places where the domestic market is small and foreign sales are a prerequisite to fully exploit scale economies and, secondly, where production technology lags best practice, providing ample scope for productivity improvements through imitation and adoption of foreign technology. Literature suggests a number of mechanisms or channels through which trade liberalisation affects manufacturing productivity (Fernandez, 2003; Van Biesbroek, (2003); Pavcnik, (2000), and Muendler, (2002)). These channels include:

- (a) Foreign Input Push
- (b) Competitive Push and Elimination of X-inefficiency.
- (c) Competitive Elimination
- (d) Higher Incentives for Technological Innovation
- (e) Economies of Scale.

Model Specification

The link between productivity and export growth can be described using the following model:

$$TFP_t = \alpha X_t + \beta EXP_t + U_t \dots (1)$$

Where

TFP = Total Factor Productivity growth

EXP = Export growth in the manufacturing sector

X = a set of control variables suspected to be associated with productivity.

t= time subscript.

To explain the control variables, two different hypotheses explained the determinants of export hence productivity. The first is the outward oriented hypothesis which sees export as being foreign demand dependent and not supply constrained. The second is the inward oriented hypothesis which sees export as being domestic supply constrained and not foreign demand dependent. Empirical evidences have shown that, neither of the hypotheses can solely and satisfactorily solve the problem of export in the Nigerian manufacturing sector. (Okoh 2005). These two hypotheses are the sources of the control variables.

It is conventional to specify the export demand function as a multiplicative or constant function of relative prices measured in a common currency and foreign income as follows (Thirlwall (1999), Okoh.(2005)). As productivity measures efficiency and effectiveness simultaneously, capacity utilisation in the manufacturing sector is included. Therefore the control variables are, import growth rate, growth rate of foreign income, relative income and capacity utilisation.

To isolate import in the manufacturing sector from the total import, import of capital good is used. (Okoh 2005). The outward oriented hypothesis also established a link between the capacity of the economy to produce export and export performance. It is claimed by the proponents of global integration that it enhances capacity to produce for export via imported technology (Okoh 2005). Hence, the growth rate of the value of import of capacity goods (MCG) was included in the model as determinant of export. We would like to first determine the causal relation (in the Granger sense) productivity and manufacturing export.

Granger Causality Test between TFP and EXP from an Error Correction Model.

The presence of Granger-causality is investigated by estimating an ECM. The ECM representation of Equation 1 above, is written as:

$$\begin{aligned}\Delta TFP_t &= \delta_0 + \sum_{i=1}^{n_1} \delta_{1i} \Delta TFP_{t-1} + \sum_{i=1}^{n_2} \delta_{2i} \Delta EXP_{t-1} + \sum_{i=1}^{n_3} \delta_{3i} \Delta MCG_{t-1} \\ &\quad + \sum_{i=1}^{n_4} \delta_{4i} \Delta CPU_{t-1} + \sum_{i=1}^{n_5} \delta_{5i} \Delta REP_{t-1} + \sum_{i=1}^{n_6} \delta_{6i} \Delta FY_{t-1} + \lambda_1 ECM_{t-1} + \varepsilon_t \dots 2 \\ \Delta EXP_t &= \gamma_0 + \sum_{i=1}^{n_1} \gamma_{1i} \Delta EXP_{t-1} + \sum_{i=1}^{n_2} \gamma_{2i} \Delta TFP_{t-1} + \sum_{i=1}^{n_3} \gamma_{3i} \Delta MCG_{t-1} \\ &\quad + \sum_{i=1}^{n_4} \gamma_{4i} \Delta CPU_{t-1} + \sum_{i=1}^{n_5} \gamma_{5i} \Delta REP_{t-1} + \sum_{i=1}^{n_6} \gamma_{6i} \Delta FY_{t-1} + \lambda_2 ECM_{t-1} + \varepsilon_t \dots 3\end{aligned}$$

where ECM_{t-1} is the error correction term. The coefficient of the ECM variable contains information about whether the past values of variables affect the current values of the variable under study. The size and statistical significance on the coefficient on the error term in each ECM model, measures the tendencies of each variable to return to equilibrium. A significant coefficient implies that past equilibrium errors play a role in determining the current outcomes. The short-run dynamics are captured through the individual coefficients of the differenced terms. Export growth does not Granger cause productivity growth if all $\delta_{2i} = 0$, and productivity growth does not Granger cause export growth if all $\gamma_{2i} = 0$. These hypotheses can be tested using the traditional F statistics (Mehra, 1994). In addition, note that Granger causality can still exist as long as λ is significantly different from zero (Choudry, 1995).

Empirical Results

This section analyzes the Granger causality equation. The model is a dynamic relationship between export growth in the manufacturing sector and growth in total factor productivity in multivariate form. Some variables associated with productivity are included. The aim of this analysis is to examine the long – run relationship existing among the variables. The variable in the model include: growth in manufacturing export value (EXP), Relative price (a ratio of the domestic price index to foreign price index), which is also the coefficient measuring the nominal rate of protection of the economy (REP), the growth of foreign income (FY), total factor productivity growth in the manufacturing sector (TFP), capacity utilization in the manufacturing sector (CPU) and import of capital goods (MCG).

Table 1: Descriptive Statistics of Selected variables from 1970- 2003

Variables	Observations	Mean	Std.Deviation
TFP	34	236.33	259.32
EXP	34	118.41	75.44
CPU	34	52.32	17.72
MCG	34	6283.3	90.85
FY	34	51369	1765399
REP	34	6.6461	9.4632

Source: Computed from data

In Table 1, descriptive statistics of the variables are presented. We can observe that all the variables have relatively high variability. The variables are not measured in the same unit therefore the growth rates of the variables are used for other tests.

Table 2: Correlation matrix of selected variables.

	CPU	EXP	FY	MCG	REP	TFP
CPU	1.0000					
EXP	-0.6534	1.0000				
FY	-0.7169	0.5690	1.0000			
MCG	-0.5422	0.1094	0.4656	1.0000		
REP	-0.4651	0.4822	0.8535	0.3831	1.0000	
TFP	-0.8063	0.4937	0.8006	0.2843	0.9549	1.0000

Source: Computed from data

The correlations between the selected variables are presented in Table 2. This correlation table gives a preliminary idea of the relationship between the selected variables. That is total factor productivity growth is positively correlated with all the variables except capacity utilization. Before drawing any meaningful inference from the result in Table 2, we consider time series characteristics of the data.

Time Series Properties of Variables in the Model.

The ADF test for unit root was conducted for the variables in the model. The results of the test at levels and first difference are presented in Table 3. Accordingly the null hypothesis is that there is a unit root in each variable. That is each variable is not stationary.

As usual, the rule of thumb is that the null hypothesis of unit root should be accepted if the ADF statistic is less negative, that is greater than the critical value. The result in table 3 therefore indicates that all variables are Non – stationary at their levels. This is also confirmed by the high value of the Mackinnon associated one – sided P – value in each variable. The economic implication of non – stationary variables is that of a persistent shock if there is a disturbance on the variable. A further test for unit root using the first difference of each variable was conducted.

Table 3: Augmented Dickey Fuller (ADF) Unit root test for selected series.

Series	ADF		P values		Critical value	
	Levels	1 st diff.	Levels	1 st diff.	1%	5%
EXP	-2.0311	-3.2409	0.2728	0.0261	-3.6394	-2.9511
TFP	1.0942	-5.2584	0.9967	0.0001	-3.6394	-2.9512
CPU	-1.4868	-3.7029	0.5281	0.0085	-3.6394	-2.9511
MCG	-1.2849	-8.8025	0.6247	0.0000	-3.6463	-2.9511
REP	2.7563	-2.7719	0.8513	0.0767	-3.7114	-2.9511
FY	-0.6273	-9.3504	1.0000	0.0000	-3.6394	-2.9511

Source: Computed from data

The result implies that all the variables are stationary at their first difference at 5% significance level except the Relative price (REP) variable which is not stationary even at second, difference. All the variables are therefore integrated of order 1 except REP. However, to further confirm the non – stationarity of the REP, the Kwiatkowski – Phillips – Schmidt – Shin (KPSS) unit root test was conducted on REP.

The result of KPSS on REP shows that REP is stationary at the second difference and therefore integrated of order 2. The properties exhibited by the time series variables in the model create the necessary condition for the cointegration test using the Johansen Maximum likelihood cointegration test and Error correction Mechanism (ECM). The results of the tests are reported in the next section.

Johansen's Cointegration Rank Test on Productivity growth and Export growth in Nigeria.

It appears that the series are integrated of the same order. There is need to test whether these variable are cointegrated or not. The cointegration results are reported in Tables 4 and 5. We first conducted a bivariate cointegration test on productivity growth and export growth (Table 4). The test result suggest that

productivity growth and export growth in the manufacturing sector are not cointegrated. That is, these variables do not move together in the long run at the same rate.

Table 4: Johansen bivariate cointegration rank test

H_0	H_a	λ_{\max} test	λ_{\max} (0.95)	Trace test	Trace (0.95)
$r=0$	$r=1$	5.6881	14.07	6.6652	15.41
$r \leq 1$	$r=2$	0.9771	3.76	0.9771	3.76

Source: Computed from data

A multivariate cointegration was conducted on productivity growth, export growth and a set of control variables. The result is reported in Table 5

Table 5: Johansen multivariate cointegration rank test

H_0	H_a	λ_{\max} test	λ_{\max} (0.95)	Trace test	Trace (0.95)
$r=0$	$r=1$	34.4020*	27.07	52.3759*	47.21
$r \leq 1$	$r=2$	22.2705*	20.97	30.9738*	29.68
$r \leq 2$	$r=3$	5.6437	14.07	5.7033	15.41
$r \leq 3$	$r=4$	0.0595	3.76	0.0596	3.76

*Asterisk indicate statistical significance at the 95% level

Source: Computed from data

The LR test based on trace test requests the null hypothesis of no co integration among the variables. The rejection up to $r \leq 1$ implies that there are at least 2 co integration equations among the $I(1)$ variables at the 5% level of significance. This is so because at $r=0$ and $r \leq 1$ the trace statistic are greater than the critical values respectively at 5% level. The LR test based on maximal Eigenvalue in Table 5 also rejected the null hypothesis up to $r \leq 1$ indicating that there are two co integration equations at 5% levels of significance.

The evidence of cointegration indicates that productivity growth will influence export growth when it is included in a package of variables. When cointegration exists, the Engle-Granger Theorem establishes the encompassing power of ECM over other forms of dynamic specifications. The next section reports the result of the ECMs as well as Granger causality test. The result of OLS estimation of the ECM representation of equation 1 is reported in Table 6. The lag length on the ECM was selected using the Akaike Information Criterion (AIC).

Since the error correction representation can be used to test the Granger Causality, the result in Table 6 is also the Granger-Causality result. From the result, it appears that the error correction terms in both equations are well defined, that is there associated coefficients are negative and statistically significant at 0.95 levels, which indicate a feedback of approximately 10.5 percent (for TFP equation) of the previous year's disequilibrium and a feed back of approximately 11.5 per cent (for the EXP equation) of then previous year's disequilibrium.

The speed with which the model converges to equilibrium is shown by the ECM coefficients. The equation of interest in this study is the EXP equation. The results show that the coefficient of ECM (-1) is -0.1561. It is properly signed and highly significant indicating that the adjustment is in the right direction to restore the long – run relationship. The magnitude of the ECM (-1) is lower in the TFP equation (-0.1053) than in the EXP equation, this indicates that the speed of adjustment is quite low in the TFP equation.

The interpretation of the ECM is further explained as follows. Export is changed, $\Delta EXP_t \neq 0$ if either there was a disequilibrium last period ($ECM \neq 0$) in which case some changes in manufacturing export is necessary to restore equilibrium, or there was a change in the exogenous variables in the current period which, because of the equilibrium condition (as shown in the co integration equation) implies that

manufacturing export (EXP_t) should also change. The anticipated signs and magnitudes of the coefficients are as follows: The coefficient of ECM is the error correction or disequilibrium correction – coefficient. If the ECM coefficient is greater than zero it means there is a “surplus” of the dependent variable, a reduction is therefore required to restore equilibrium. But if otherwise as in Table 6 increase is required through the independent variable (Patterson, K. 2000)

Result of ECM and Granger Causality test

Table 6: Ordinary Least Square estimate of the error correction model.

Variables	TFP equation	Std. error	Exp equation	Std. error
Constant	126.7964	14.547	72.66036	46.7214
ECM (-1)	-0.1053	0.1179	-0.1561	-0.1149
ΔEXP (-1)	-0.153973	0.27825	0.2976	0.2712
ΔEXP (-2)	-0.20311	0.25548	-0.1366	0.2490
ΔMCG (-1)	-0.014235	0.00157	-0.00213	0.00153
ΔMCG (-2)	-0.00929	0.00120	-0.00204	-0.00929
ΔTFP (-1)	-0.015410	0.1038	0.01402	0.1012
ΔCPU (-1)	0.001292	1.72247	-1.7952	1.7224
ΔTFP (-2)	-0.4630	0.1183	0.06488	0.11536
ΔCPU (-2)	-3.7595	1.9033	-2.7954	1.8553
ΔFY (-1)	1.22E- 05	6.8E-06	-6.55E-07	6.6E-06
ΔREP (-1)	-124.5730	13.149	-20.2233	-20.2233
R ² Adjusted	0.84		0.769	
F stat	13.41		31.947	

Source: Computed from data

The significance of ECM also supports the conclusion of co-integration. The short-run dynamics are captured by the individual parameters except that of the ECM term. The F-Statistics for both equations, significant at 0.95 levels, suggest that total factor productivity does Granger cause export growth and export growth granger-cause total factor productivity growth. The R² adjusted (0.769) for the EXP equation indicates that 76.9% of variations in EXP growth have been explained by the joint variation of the variables in the model.

CONCLUSION

The analysis in this study draws on recent developments in dynamic empirical analysis to posit a causal relationship between export trade protection and productivity growth in the manufacturing sector. The empirical analysis provides support for such a link to further develop our understanding of this link. The interaction between export growth and productivity growth was explored using the Granger causality tests and the mechanism of how short-run adjustment can be made to the long-run interaction of these variables. These results provide the basis to conclude that, Nigeria should look inward rather than outward, to promote manufacturing export at a sustainable level, not just over space but over time.

It is clear that increased productivity can increase export growth and vice-versa. For Nigeria not to be marginalised in the ongoing globalization there is the need to develop the manufacturing sector towards increasing production, not only for domestic consumption but for export.

APPENDIX

Sources of Data.

Total Factor Productivity (TFP)

According to Caesar (2002), output growth (Q_t^*) may be due to two broad factors namely, factor accumulation, which in turn may be broadly broken into growth of capital input ($s_k K_t^*$), and growth of labour input ($S_L L_t^*$), the second is growth of total factor productivity ($TFPG_t^*$). That is

$$Q_t = TFPG_t + s_k K_t^* + s_L L_t^* \dots (1)$$

Where

Q_t^* = growth of output proxied by value added or index of manufacturing output

K_t = index of capital service proxied by net fixed asset.

L_t = index of labour service or employment.

Equation 1 was estimated using translog-based growth accounting formula.

$$[\ln Q_t - \ln Q_{t-1}] = v_L^* [\ln L_t - \ln L_{t-1}] - v_k^* [\ln K_t - \ln K_{t-1}] + TFPG_t \dots (2)$$

$$\text{and } TFPG_t = [\ln Q_t - \ln Q_{t-1}] - v_L^* [\ln L_t - \ln L_{t-1}] - v_k^* [\ln K_t - \ln K_{t-1}] \dots (3)$$

Where

$$v_L = 1/2^* (v_{Lt} + v_{Lt-1})$$

$$v_k = 1/2^* (v_{kt} + v_{kt-1})$$

\ln = Natural logarithm operator

The v_L and v_k are the average factor shares. To solve the problem of under utilised capacity, an adjustment procedure following Caesar (2002) was made. The procedure is to subtract the rate of capacity utilisation from the estimated TFPG to obtain adjusted TFPG.

Data on the other variables were sourced as follows:

- (i) CBN Annual Report and statement of Account (various issues) – manufacturing export,
- (ii) CBN Annual Statistical Bulletin (various issues) – capacity utilisation, import of capital goods, and domestic price index,
- (iii) United Nation Statistics Division national account publication (2006)- foreign income and foreign price index,
- (iv) The Nigerian Stock Exchange Fact Book (various issues) – net fixed asset and per worker's earning for the selected industries.

REFERENCES

Balassa, B. (2001): the Structure of Protection in Developing Countries, John Hopkeir Press, and Baltimore.

Caesar, B.C. (2002), "Total Factor Productivity in the Philippines, Discussion paper series no. 2002-01, Philippines Institute for Development Structure, March

Choudry, T. (1999), 'Long-run money Demand Function in Argentina during 1935-1962: Evidence from Cointegration and Error Correction Models; Applied Economics, 21: 66-67

Feentra, R. C, Markusin, J.R. and Zelle, W (1992). Accounting for growth with new input: Theory and evidence American Economics Review: 415 -21

Fernandez, A.N. (2003). Trade policy, trade volume and plant level productivity in columbium manufacturing industry Grossman, G.M and Helpman, E (1991): Innovation and Growth in the Global Economy, The MIT Press, Cambridge.

Haddad, M., de Melo, J. and Horton, B. (1996): Morocco, 1984-89: Trade Liberalization, Exports, and Industrial Performance, in Mark J. Poberts and James R. Tybout (eds), *Industrial Evolution in Developing Countries*, Oxford University Press, Oxford.

Iscan, T. (1998): 'Trade Liberalization and Productivity Gains in Developing countries: A Survey of the Literature, The World Bank Research Observers, 5(1): 1-24.

Kakensu, J. (2002): 'The Impact of Trade Liberalization on Manufacturing Sector Performance in Developing Countries: A Survey of the Literature, Working Paper Series, Department of Economics, University of Wollongong, WP 02-07.

Krishna, P. and Mitra. D. (1998) Trade liberalization, market discipline and productivity growth: New endemal from India. *Journal of Development Economics* 56: 447-462

Kruegar, A.O and Tuncer, B. (2002): 'Growth of Factor Productivity in Turkish Manufacturing Industries. *Journal of Development Economics*, 11: 307-25.

Mehra, P.Y (1994). "Wage Growth and Inflation Process: An Empirical Approach; in B.B. Rao (ed.), *Cointegration for Applied Economist*, Pp. 147-59, St Martin's Press, New York.

Muendler, M.A. (2002). Trade, technology, and productivity: A study of Brazilian manufacturers, 1986 – 1998. University of California, San Diego and CES info.

Nishimizu, M. and Robinson, S. (1994): 'Trade Policies and Productivity change in Semi-Industrialized Countries, *Journal of Development Economics*, 16 (1 and 2): 177-206.

Okoh, R.N. (2005): 'Global Integration And the Growth of Nigeria's Non-oil Exports'. Available on internet http://www.csae.ox.ac.uk/conferences/2004_

Patterson, Kerry (2000): *An Introduction to Applied Econometrics, A Time Series Approach*, 1st ed, Pal Grave Publisher

Pavcnik, N. (2000). Trade liberalisation exit and productivity improvement; Evidence from Chileam / Plant, NBER Working Paper, W 9852

Rodrik. (1991). Closing the productivity gap: Does trade liberalisation really help in Hollemey, G. (Ed). *Trade policy, Industrialisation and Development*. Claredon Press Oxford

Sjoeholm, F. (1999): 'Exports, Imports and Productivity: Results from Indonesian Establishment Data, Working Paper Series in Economics and Finance, No. 183, Stockholm School of Economics, Sweden.

Thirlwall, A.P. (1999): 'Growth and Development, 6th edition, London, Macmillan Press, pp 419-450,

Tybout, J.R. and West brook, M. D. (1995): Trade Liberalization and the Dimension of Efficiency Change in Mexican Manufacturing Industries, *Journal of International Economics*, 39: 53

Van Biesebroek . I. (2003). Exporting raises productivity in Sub-Sahara manufacturing plants. *NBEP Working Paper No. 10020*.

Weinhold, D. and J. E. Rauch (1997), 'Openness, Specialisation and productivity Growth in Less Developing Countries,' NBER Working Paper No. 6131.

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